Appl. No. 10/050,246
Amdt dated Oct 09, 2003
Reply to Office Action of Jul 15, 2003

Amendments to the Specification

Please replace the abstract with the following rewritten abstract:

An ~~improved~~ barrier stack for inhibiting diffusion of atoms or molecules, such as O_2 is disclosed. ~~The barrier stack is particularly useful in capacitor over plug structures to prevent plug oxidation which can adversely impact the reliability of the structures.~~ The barrier stack includes first and second barrier layers ~~having mismatched grain boundaries. The barrier layers are selected~~ formed from, for example, Ir, Ru, Pd, Rh, or alloys thereof. ~~By providing mismatched grain boundaries, the interface of the layers block the diffusion path of oxygen. To further enhance the barrier properties, the~~ The first barrier layer is passivated with O_2 using, for example, a rapid thermal oxidation (RTO) prior to formation of the second barrier layer. The RTO forms a thin oxide layer on the surface of the first barrier layer. The thin oxide layer ~~can advantageously~~ passivates the grain boundaries of the first barrier layer as well as promoting ~~promote~~ mismatching of the grain boundaries of the first and second barrier layer.

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